The Michigan Antique Radio Chronicle

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A QUARTERLY WRITTEN FORUM OF THE MICHIGAN ANTIQUE RADIO CLUB

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Robert Alter's Radio

THE MICHIGAN ANTIQUE RADIO CLUB

The Michigan Antique Radio Club was founded October 19, 1985 at the Dillon Inn in Lansing, Michigan. The purpose of the organization is to preserve the history and enhance the knowledge of radio, television, and related disciplines, with special emphasis on contributions originating in the state of Michigan. Dues for membership in M.A.R.C. are $22.00 annually (US funds) and payable in January. Officers of M.A.R.C. welcome your membership, your questions and your personal contributions to enhance the service value, growth and activities of the organization. Terms of office for Board members expire concurrently with the summer EXTRAVAGANZA meet held in Lansing, Michigan. Send Correspondence to MARC, 7458 St. Auburn, Bloomfield, MI 48301. E-mail: president@michiganantiqueradio.org. **Visit our Web site at** www.michiganantiqueradio.org.

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On the Cover...

Many who attended EXTRAVAGANZA '13 will remember this beautiful home-brew radio from the Equipment Contest. It's probably fair to say that it would be hard to find a hand-made set more elegant than this one. At the time this set was displayed, relatively little information was provided about its origin. And for many years, the Gray History of Wireless Museum, owners of this set, knew little about its history.

But providence, divine or otherwise, brought some interesting documents to the museum that were related to this radio. And John Reinicke tells the tale of the man who created this masterpiece in his *Adventures in Collecting* article beginning on page 24.

Fred Bruflodt

We are sad to report that Fred Bruflodt passed away on December 10th following a brief illness. Fred was an active MARC member who was always willing to help out at meets. Some might remember him as the person who set up the sound system at EXTRAVAGANZA. Fred was also active in the Detroit Theatre Organ Society.

Perspectives

Innovations

Changes are on the way. The board has been reviewing just about everything as we endeavor to meet the desires of our members and balance our books. This has lead to some really exciting changes and we are happy to announce that for 2015 our Vintage Electronics EXTRAVAGANZA will be held at the Kalamazoo Expo center. With this change in location we will be able to hold the entire event INSIDE in the same air-conditioned space. No longer will weather, be it rain or extreme heat, be a concern. The space is very attractive, well lit, and offers a number of amenities such as high quality food service, multiple rest rooms, and Wi-Fi access. No longer will you have to deal with pop-ups and worries about rain. We are excited to offer a major old radio and vintage electronics event entirely under one roof.

There are several hotels with various amenities and price points within 2 miles and for the hardy, there are campsites on the Expo center grounds. There is a lot to do in Kalamazoo including restaurants, museums, breweries, and the famous Air Zoo.

We are working on the details such as schedule and room layout. We can say that it will be a big event with set up on Thursday evening, July 9th, and two full days of events including a live auction, a silent auction, presentations, and our "Good Buy" event on Saturday, July 11th. We will be offering tables for rent as well as "booths". A booth will be a 10 x 10 space on the floor such that consoles and other bulky things may be displayed. We invite comments and we think this will be a lot of fun.

Another change we have made, you are holding in your hand. We changed the format of the Chronicle to save postage. It is half size, and half postage but with twice the pages so there is no loss of content. We will continue to publish the Chronicle 4 times per year with two full-size editions and two half-size editions. We will continue to ship first class postage to insure a timely arrival at your home. Again, comments are welcome.

And don't forget our winter meet! This continues to be a great "cabin fever" opportunity held, once again, at the Costick Center in Farmington Hills on Saturday January 17th. This event has always been well attended and we again look forward to a great Vintage Electronics Expo. Don't forget to look around your collection for contest entries. The contest is an enjoyable way to show off an interesting part of your collection and helps promote the hobby. In the past, our Radio Rescue efforts have produced some very interesting items that wound up for sale. Do not hesitate to make your reservations.

I am looking forward to seeing y'all at the Costick Center – and be sure to bring a friend or two.

John Reinicke
President

NOTES FROM THE SERVICE SHOP

No. 88

by John Reinicke

Flash

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I do enjoy my trip to Centerburg in the fall. This time I enjoyed clear skies and enough of a hint of fall color to let me know that in a week a two the trees would be spectacular. I arrived at Ken and Betty's antique shop just as they were ready to close for the day. After they closed up we all headed for a new restaurant on the north east side of town. After the excellent meal, we all agreed that the influence of "The Food Channel" had found it's way to Centerburg, and the thought of a "fusion" restaurant in Centerburg would have been unthinkable just a couple of years ago.

"I am not sure I even know what a "fusion" restaurant is – even now." Betty added with a laugh. "I do have some interesting news to relate and we are eager to share."

"Let me guess," I responded as we waited for desert. "You are going to appear on "Jeopardy."

Betty laughed. "Well, maybe not that exciting - but nearly so." I waved my hand to indicate she should continue. "We landed a contract with the movie industry."

"So tell me about it." I responded.

Ken and Betty both had broad grins as Betty continued. "We were contacted by a movie production company and they are looking for a consultant to help with their sets. They are working on a major motion picture that will be a family saga that starts in the Revolutionary War south and moves through the Civil War to finish in Prohibition era Chicago. We can't tell you anything about the movie until it is released, but I can say that it has some major names as stars."

I responded with some considerable enthusiasm, "So what can you tell me? What will you be doing?"

"I can tell you that the director is a real stickler for detail and he wants to be sure that everything that appears in the movie is absolutely period correct. It would not be good for a Victorian table and chairs to appear in a scene that is supposed to be set in 1814. He knows that most viewers wouldn't notice, but some would, so he wants things to be correct. I guess we now have enough of a reputation that we have become experts."

Ken was smiling as he added, "Or we are experts because we meet the requirement that anyone that lives more than 50 miles away must be an expert and we certainly are a lot more than 50 miles from Hollywood."

"So what else can you tell me?" My curiosity had certainly been piqued.

"The southern part of the movie will be shot in Wilmington, North Carolina and the Chicago parts will be shot in Detroit."

Betty was clearly enjoying relating the story. "We will be consulted about what furniture would be in the room and how it would have been arranged unless a description appears in the story and then we will be consulted as to actual appearance. They will also ask about room appearance as well, but they have other experts for that."

"So where does all this period furniture come from?" I asked. "Some of this stuff must be museum pieces and I wouldn't expect a museum to risk lending a valuable part of their collection."

"That is actually correct – I have asked quite a number as it turns out. But I did get them to agree to allow me to photograph them in detail. The movie company has a number of very talented woodworkers and they can use the photographs to make replicas that would fool an expert from 5 feet. Up close you can see it is not real. For example, if a drawer doesn't have to open, it will just be a drawer front. The same for doors and from the back you can see raw, quite new, wood." Betty finished her explanation and Ken added, "In some cases, we can rent them actual pieces from our inventory and that is a good deal for us as well."

I had to agree that it would be interesting to follow up with them after the movie was released so they could tell me what had gone on.

"Oh yea, one more thing," Ken added. "You might get a call from them as well. In the Chicago scenes they will have a couple of radios and they want to make sure those are correct as well. They might also have some questions about broadcast structure at the time. I gave them your number and I didn't think you would mind."

Although I didn't come right out and mention it, I did find the possibility, however remote, to be quite intriguing. We finished our visit and I retired to camp out in the old apartment above the shop.

The next morning found me in the attic above the shop, with a cup of Betty's robust coffee, seated at the old oak desk by the front window. I opened the remarkable logbook and diary of Clemmens Mettmann, the proprietor of the Centerburg Radio and TV shop that had occupied the building decades ago. I stepped into Clem's time machine and found myself at the end of the decade after World War II.

It was a cool Saturday morning and Art had just carried his first cup of coffee to his bench when Darcy caught his attention from the showroom door. She had what could only be described as an evil smile on her face as she silently pointed to Art and waved him over. To add to his curiosity, as he walked by Gerry's bench, he heard a quiet "Good luck with that one", from Gerry. When Art stepped into the showroom, Darcy pointed to a rather handsome tombstone set on the counter. She explained, "That set came in last night and since it is old enough to vote and you are constantly bringing in old sets from your relatives, I figured it was right up your alley."

Art could tell from the tone of her voice that there might be more to the story. "Is there something I should know about that set?" He asked with, perhaps, a bit of a smirk.

"Might be," Darcy responded. "You should probably know that one of the Yoder brothers brought it in. As you probably know, those guys fancy themselves as consummate mechanics. It was Lars who drug it in. He said it was completely dead and he really wanted it fixed. Now I am not sure, but I suspect, he promised some family member he could get it working and a working old radio is now a matter of personal pride on his part. I was tempted to tell him that his secret is safe with us. He did say that price was not a huge concern and that made me suspect that you should look carefully at that set."

Art nodded in agreement and picked up the set. As soon as he hefted it off the counter, he could see why Darcy hadn't

just carried it back to his bench – that sucker was heavy. As he walked past Gerry's bench on the return he noted that Gerry was grinning.

With the set on his bench, it did not take long to determine that it was very quiet. The tubes and the pilot light lit, but that was it. Art decided to take a couple of sips of coffee as he stared at the back of the set. As far as he could tell, things looked pretty normal. If ol' Lars had done anything, it wasn't obvious. It took a couple of minutes to remove the mounting bolts and extract the chassis. As he removed the chassis, he did make a mental note to replace the rubber shock mounts – they had turned to "goo".

With the chassis out of the cabinet, it only took a minute to discover the rectifier tube was not lighting. A few steps took him back to the showroom to retrieve a replacement 80 tube, passing a grinning Gerry both ways. With the new tube in place, the set came to life with a loud hum. It did not take long to bridge in a filter cap, which quieted the hum. Art nodded to himself and set about actually replacing the very dried out, old, wet electrolytic capacitors.

With the new filter caps in place the set appeared to be working fairly well. Art then decided that an alignment touch up was in order and rounded up the signal generator and, because of the set's vintage, the proper Rider's manual. As he worked through the alignment, he noted that the set had a bit more hum than he would like and he made a mental note to check further. Perhaps one of the tubes had a partial cathode to filament short.

As Art was checking the alignment instructions in the Riders, he heard Clem in the door of the shop. Clem was obviously talking to someone in the showroom. "Don't worry about it, Ben," he said to the unseen customer. "I expect I will be able to figure it out."

"Thanks," came the reply. Clem then walked into the shop carrying a 4 by 5 speed graphic camera. He carefully placed the clearly professional instrument on his bench and returned to the showroom. He returned from the showroom carrying an interesting metal box, cables, what appeared to be drawings and a photographer's flash unit. Both Gerry and Art had noticed the entrance and Clem was smiling at them. Before either could say anything, Clem held up his hand.

"I know, I know, you want to know what this is and what that was about." Gerry and Art both nodded in agreement at Clem's response. "That was Ben Franklin in the showroom and he asked me to take a look at this for him."

"Ben Franklin, the guy on the C note? I didn't think he was still around," Art wisecracked.

Clem shot him a dirty look and responded, "No, not THAT Ben Franklin. Ben Franklin the photographer."

Gerry chimed in, "Oh yeah, I've heard of him. He has a studio downtown and does all kinds of pictures from weddings to newspaper shots. I think he even got written up in *Life* one time with a spread of his photos from the war."

"That would be the one," Clem responded. "With the reputation he has, I think it is swell that he decided to return to Centerburg after the war. I remember when he was growing up that he took a lot of kidding about his moniker, but that sure didn't keep him from his career."

"So, Boss, you thinking of taking up photography?" Gerry added.

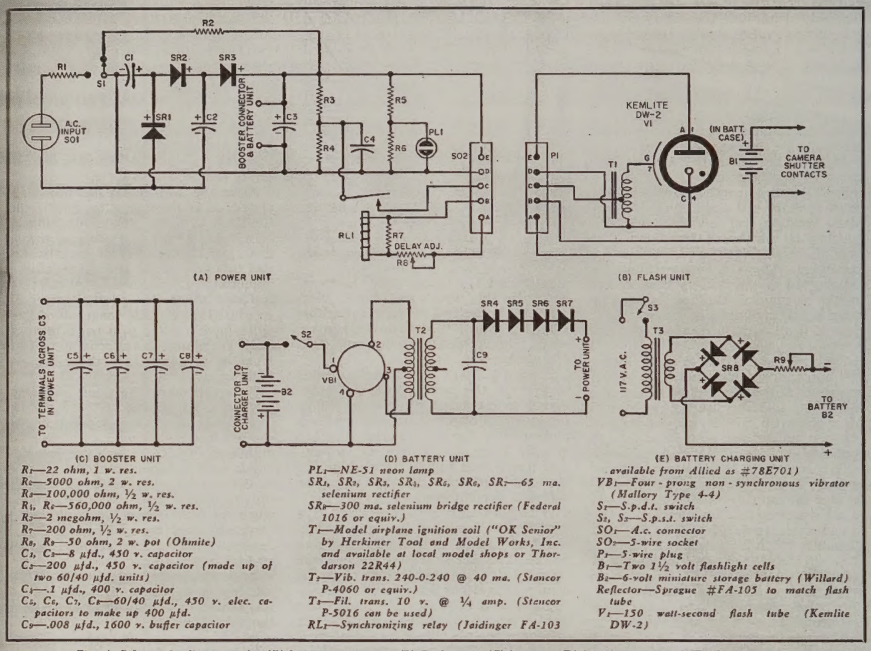
"I have to admit, it would be interesting, but no, I don't plan to take it up," Clem responded. "As it turns out our Mister Franklin is quite a good mechanic as well. What I have here is an electronic flash unit that he built. It appears to be well built but it doesn't work so Ben brought it to me to get another set of eyes on it. He explained how it is supposed to work and that all sounded fine to me, so I will see if I can find what he missed."

The completed photoflash unit that is described in the article below is shown here along with a snapshot that was taken with the aid of the unit. A pitcher of water was thrown into the air and the unit was flashed. The column of water from the pitcher appears to be suspended in mid air in the shot.

Art had walked over to Clem's bench and was studying the set up. There was an assembly of three stacked crackle finish black metal boxes that could be purchased from Allied Radio that were held together with draw catches. The top box had a strap that could be used over a shoulder and the middle box had connectors for cords. Next to the box was the actual flash unit, which was clearly adapted from one intended for flash bulbs. The collection was completed by an assortment of cords and, of course, the camera.

Gerry walked over to take a look. "Wow, it looks like Ben did a really workman like job. That actually looks like something that could be in production. I have some test equipment that doesn't look that good. So why would he go to all the trouble, to say nothing of expense, to make up this rig?"

Clem smiled. "Wouldn't you know, I asked him the very same question. As it turns out there are several good reasons. Any photographer can tell you that a good photo requires the right type of light and often takes quite of bit of light. If you want to stop action, say at a sports event, it takes a fast shutter speed and that, in turn, requires a lot of light. Unless it is outside on a really sunny day that means the photographer must add his own light. In most cases it would be very inconvenient to plug in a bright light or lights so photographers use flash bulbs. Flash bulbs are housed in normal light bulb envelopes made with clear glass. Inside the glass is either magnesium foil or magnesium "wool" in a pure oxygen atmosphere. In place of the filament is an igniter that can be fired with a couple of flashlight batteries. Flash bulbs are quite dependable but they are only good for one flash, of course. This means the photographer must carry a rather sizable bag of bulbs with him along with a bag for the spent bulbs. The bulbs are quite hot after the flash, so a rag to handle them is in order as well. And to finish out the inconvenience, every once in a while



R_1—22 ohm, 1 w. res.
R_2—5000 ohm, 2 w. res.
R_3—100,000 ohm, ½ w. res.
R_4, R_6—560,000 ohm, ½ w. res.
R_5—2 megohm, ½ w. res.
R_7—200 ohm, ½ w. res.
R_8, R_9—50 ohm, 2 w. pot (Ohmite)
C_1, C_3—8 µfd., 450 v. capacitor
C_2—200 µfd., 450 v. capacitor (made up of two 60/40 µfd. units)
C_4—.1 µfd., 400 v. capacitor
C_5, C_6, C_7, C_8—60/40 µfd., 450 v. elec. capacitors to make up 400 µfd.
C_9—.008 µfd., 1600 v. buffer capacitor

PL_1—NE-51 neon lamp
SR_1, SR_2, SR_3, SR_4, SR_5, SR_6, SR_7—65 ma. selenium rectifier
SR_8—300 ma. selenium bridge rectifier (Federal 1016 or equiv.)
T_1—Model airplane ignition coil ("OK Senior" by Herkimer Tool and Model Works, Inc. and available at local model shops or Thordarson 22R44)
T_2—Vib. trans. 240-0-240 @ 40 ma. (Stancor P-4060 or equiv.)
T_3—Fil. trans. 10 v. @ ¼ amp. (Stancor P-5016 can be used)
RL_1—Synchronizing relay (Jaidinger FA-103 available from Allied as #78E701)

VB_1—Four-prong non-synchronous vibrator (Mallory Type 4-4)
S_1—S.p.d.t. switch
S_2, S_3—S.p.s.t. switch
SO_1—A.c. connector
SO_2—5-wire socket
P—5-wire plug
B_1—Two 1½ volt flashlight cells
B_2—6-volt miniature storage battery (Willard)
Reflector—Sprague #FA-105 to match flash tube
V_1—150 watt-second flash tube (Kemlite DW-2)

Fig. 4. Schematic diagrams for (A) basic power unit, (B) flash unit, (C) booster, (D) battery unit, and (E) charging unit.

one will explode. It goes without saying they aren't cheap so the cost of each photo is better than double.

"Electronic flash units are good for thousands of flashes so a bag of replacements isn't required. In addition the flash can be a short as one five thousandth of a second, which is a whole lot faster than any camera shutter. So electronic flash is really good at stopping action."

Gerry was nodding in agreement. "So what inspired our intrepid Mister Franklin to make his own flash unit? I expect, as a professional, he could have just purchased one."

"As it turns out, Ben is really quite clever," Clem noted with some seriousness. "The commercial units use what are called high pressure flash tubes that take a couple thousand Volts to fire. The power supplies are so bulky they are only suitable for studio work. Ben wanted something that was reasonably portable and decided to take advantage of a couple of advances.

"The first is the development of the Kemlite DW-2 flash tube. The second is the development of reasonably small 450 Volt electrolytic capacitors, which is a result of the demand for use in television sets."

Art and Gerry nodded but it was Art that asked, "So how does it work?"

Clem held up his finger and spread out the drawings on the bench. "A flash tube is an elongated and coiled glass tube with electrodes and the ends. It is filled with xenon gas and some other gases at pressure. If one studies the property of any arc lamp, which this is, as you raise the voltage on the electrodes at some point the vapor will ionize and when that happens the tube very suddenly becomes an extraordinarily good conductor – a virtual short circuit. The Voltage it takes to ionize the gas depends on internal pressure and the mixture of gasses. Now the thing that is interesting about the DW-2 tube is that it takes quite a bit more than 450 Volts to fire IF the Voltage is just applied to the end terminals. However, if you

look closely at the tube it has a fine wire wrapped around the outside. Think of this wire as sort of a grid. If you have 450 Volts applied to the end terminals – say from a fairly large electrolytic capacitor, nothing will happen. However, if you apply a quick pulse of around 4 KV to the fine wire, the gas inside the tube will ionize and the capacitor will discharge through the tube. The discharge resistance is on the order of less than 3 Ohms and that makes the current just over 150 Amps. A 100 mFd cap will discharge in around half of a millisecond.

"The formula for the energy stored in a capacitor is equal to one half of capacitance in Farads times the square of the Voltage. A 100 mFd cap charged to 450 Volts will hold 10 Watt-Seconds and if that discharges in half a millisecond that means the peak power is on the order of 20 kilowatts. Since an arc lamp is more that twice as efficient at making visible light as an incandescent lamp, that means that the flash is extraordinarily bright for an extraordinarily short period of time."

Clem could see that both Gerry and Art could appreciate the really bright flash. It would be Art that asked, "You mentioned a 4 KV pulse on that external bit of wire around the tube. Where does that come from?"

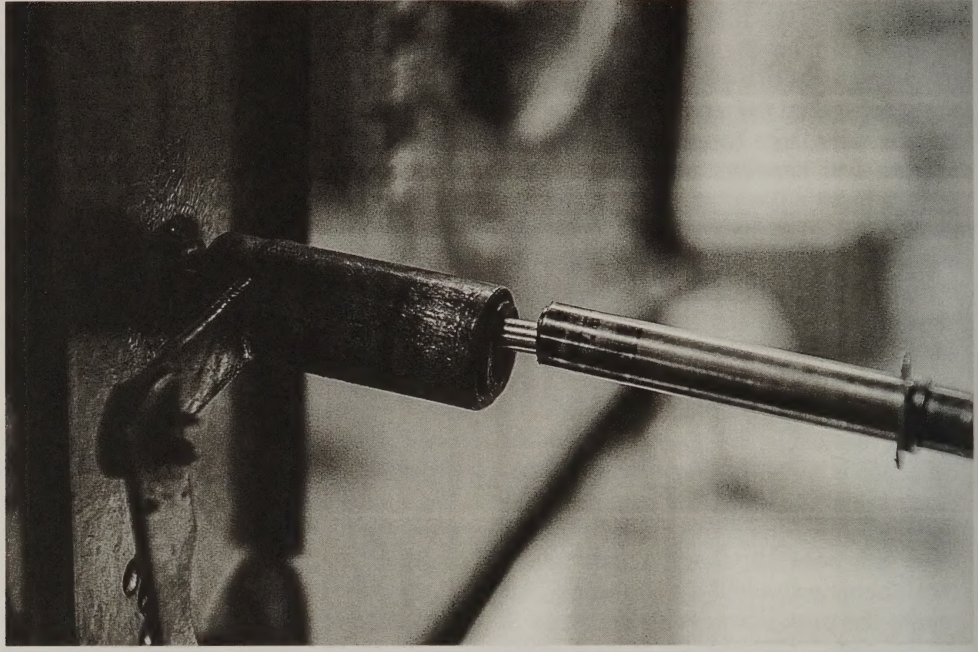
"As I said, Ben, like his namesake, is a clever fellow," Clem responded. "He is using a model airplane ignition coil, a Herkimer Tool and Model Works model 'OK Senior'. To get the pulse, a contact will discharge a 0.1 mFd cap into the primary of the coil and the secondary is connected to the external wire."

Clem pointed to the stack of three boxes on his bench. "As you can see, the control unit is made up of three boxes. The middle box contains all of the electronics needed to make a free-standing flash unit. It has two 60-40 mFd electrolytic capacitors all connected in parallel for the flash source. To generate the 450 Volts, Ben is using three selenium rectifiers and two 8 mFd electrolytics in a Voltage tripler arrangement - thus eliminating the need for a heavy power transformer. 200 mFd cap charged to over 400 Volts will result in a 20 Watt-second flash. There is a neon lamp connected with a Voltage divider network and the lamp won't glow until the charge on the capacitor is over 400 Volts. That provides indication that the unit is ready to fire. Also notice that the on-off switch is single pole double throw such that a 5K resistor is used to discharge the capacitors in the off position for safety. The flash head is adapted from one of the old flash bulb units with the reflector replaced with one designed specifically for the flash tube. The model airplane coil is located in the fabricated housing at the back of the flash unit.

"As for the other two boxes, the bottom one holds 4 more 60 – 40 mFd caps which when plugged into the bottom of the control box brings the available flash to 60 Watt-seconds for extra light. The top box houses a standard auto radio power transformer, vibrator and a special miniature rechargeable battery. You will notice the top box also has the shoulder strap since this is what would make the rig portable. This little box with the power cord is used to charge the rechargeable battery."

Art had a thoughtful look on his face. "I can see from the schematic that a relay is used to fire the flash. Why not just use the contacts in the camera directly?"

"Good question, Art," Clem responded. "There are two really good reasons. The first is the relay provides isolation from the high Voltage to help insure the photographer doesn't give himself a shock when he trips the shutter. The second reason is that it introduces a slight time delay that is required to make it work. The time delay is required because the camera is designed to fire flash bulbs. Remember that flash bulbs have to be ignited by their internal filament and that can take 10 to 15 milli-seconds between contact closure and the full brightness of the flash. The camera actually fires the



The broken Zenith shaft

flash before the shutter is opened. Since the electronic flash is, for all purposes, instantaneous, the flash would be over before the shutter opened. So the relay introduces the required delay and the power unit has a pot to adjust just how fast the relay picks up. Once I get this thing working for Ben I will fire it at a white piece of paper and look through the back of the camera to be sure the shutter is fully open when it fires."

With that, Clem looked up and happened to be facing toward Art's bench. "Sweet mother of pearl!" He exclaimed with some alarm and urgency. Art and Gerry turned to see what had caused the concern and immediately noticed the cloud of smoke that was pouring from the radio chassis on Art's bench. Art dashed over and quickly pulled the plug on the set. Even with the power off, smoke continued to pour from the holes in the power transformer for several seconds. Gerry walked to the window and opened it to let out the smoke and acrid smell. The olfactory assault made its way to the showroom and Darcy stuck her head in the door of the shop to locate the source of the smoke. Clem waved to her and explained. "It's all under control. It would appear that it is a good thing that our friend Mister Yoder told us he wasn't concerned about cost because the repairs on his radio just got a lot more expensive."

Art stared at the set with a dejected look. "Wow, that transformer didn't look bad when I worked on it. That was a new one for me."

Clem walked over and took a look at the chassis. Other than a really bad transformer, nothing looked out of the ordinary. Clem looked closely at the speaker, particularly the field coil. "Art, don't feel too bad. Trust me, that is not the last time something will go up in smoke on your bench. I think we have a replacement for that transformer in the old stock in the barn. It will be on the second floor on those shelves with the old radio parts next to the north window. I also have something you should check."

Art looked interested as Clem continued. "The first thing is that I don't think

that transformer just failed – I think it was executed." Art really looked a bit puzzled. "Elementary, my dear Watson, elementary." Clem did a fairly good imitation of Basil Rathbone. "That set came from our friends the Yoders. Given their propensity for muddling it is safe to assume something has been altered in that set. As I recall, that is one of those old sets that had the speaker field connected from B plus to ground. In newer sets, the field windings are connected in series with the B plus and act as a filter choke. The sets with the series connection had a much lower resistance than the older ones with the shunt connection. I'll bet you a cup of coffee that that speaker has been replaced and has the wrong field coil with a relatively low resistance and that put too much load on the transformer. With the extra load, there would have been a bit more hum in the set. The clue for the radio mechanic is that with the full wave rectifier the hum would have been 120 cycles rather than the 60 cycle hum a leaky cathode would give. You could check with a 'scope, of course, but your ear would have already told you what to expect."

Art nodded and Clem walked back to his bench to work on the flash unit. With Clem's suggestion, Art pulled out his Ohm-meter and checked the resistance of the field coil. The schematic called for 2700 Ohms and Art found 300. "Dang, you were right, Mister Mettmann. How did you know?"

Clem looked up from his bench. "I have the advantage of experience. To you, that just looked like an old speaker, which it is. To me, that looked like an old speaker that wasn't quite old enough. Honestly, the rest was a guess. While you are in the barn looking for a transformer look up in the rafters. There are a bunch of old speakers hanging from nails and if you go shopping with your Ohmmeter you just might find a suitable substitution."

Art took the suggestion and pulled the key for the barn off its nail as he headed across the alley. Art was happy to find a suitable replacement transformer on the shelf Clem had indicated. He used a rag to dust off the accumulated grime and then set about "shopping" for a speaker. The collection was arranged by size and, as it turned out, there were several that would fit. It took a bit longer to find one

The shaft with the internal splice

with a field coil of 3000 Ohms and Art figured that would probably be close enough. As he carefully dusted off the speaker with the rag, he shook his head. He had to admit to himself that this speaker did look to be older than the one in the set.

Art returned to his bench and set about replacing the power transformer and figuring out the connections to the speaker. As he was finishing the transformer replacement, a brilliant flash illuminated the shop. Both Art and Gerry looked up and both could see a smiling Clem seated at his bench. Clem pushed the shutter on the camera and another flash left the two of them blinking with a spot in front of their eyes.

Gerry laughed, "Oh boy, you weren't kidding about bright! It appears you have it working. So, Boss, what was the problem?"

"I can see why Ben had trouble finding the problem." Clem was clearly satisfied with himself. "I spent quite a bit of time checking wiring in the control box and looking for cold solder connections. As I said, Ben is a good mechanic and all looked really good. The problem turned out to be in the flash head. The cable is connected to a terminal strip in the head and all of the connections were very neat and properly soldered. In fact they were so neat I overlooked the fact there was no wire from that strip to the primary of the model airplane spark coil. Once I noticed that, it was easy to fix and, as you can see, it is now working."

"You said something about making sure the flash occurred with the shutter fully open. How will you do that?" Gerry responded with an acknowledging node from Art.

With a bit of a flourish Clem produced a photographers black cloth and placed it over the back of the camera and ducked his head under. With the camera pointed at a wall, Clem pushed the shutter. Clem's voice was somewhat muted by the cloth. "I am watching to see that the shutter is fully open which I can see as a complete, round opening. The flash is very quick, but persistence of vision makes it quite easy to see." Clem adjusted the timing pot and after each adjustment pushed the shutter. "Well I'll be," he explained as he adjusted. "If the timing is off, the circle isn't round and I am happy to see that the sweet spot of the adjustment is pretty broad. I think Ben should be really happy with this gizmo." Clem extracted himself from the cover. "Of course it is now up to Ben to see how to set the camera to work with whatever film he is using."

With the flash unit working, Art went back to the transformer replacement. With the new transformer and speaker in place, the radio worked quite well and, as Clem had predicted, the hum was now quite acceptable. Art made a mental note, in the future, to not turn his back on a set with too much hum and to pay attention to the sound of the hum. As he looked up he saw Darcy in the door of the shop. Once again she had a sort of evil smile and was pointing to him and beckoning to him.

"Not again!" Art responded with a chuckle.

"Oh yes, again!" Darcy responded, also with a chuckle.

As Art walked past Gerry's bench he held up his hand to the broadly grinning occupant. "Don't say a word."

"This set came in this afternoon." Darcy gestured toward a pre-war Zenith console. "It was really something to see Matt Burgaw drag it in here. The complaint is that the tuning knob won't move the dial or tune the radio. The good news is that Matt isn't likely to have messed with it. The bad news is that they have a lot of small children and he did say they liked to spin that dial."

Art smiled – at last one that shouldn't be too bad to repair. "With that heavy flywheel I can appreciate that they would enjoy playing with the tuning knob. I expect it just has a broken tuning belt." With that, Art reached for the tuning knob. This set featured the volume knob

in the middle with the tuning knob behind and the band switch lever behind that, all on concentric shafts. Art grabbed the knob to give it a spin expecting to feel the resistance of that smooth flywheel tuning. Instead, he encountered absolutely no resistance. His first thought was that the set-screw in the knob must have come out. With that, Art decided to take it back to his bench and retrieved the hand truck for the move.

When he got back to his bench, he checked the new power transformer on the set on his bench. Satisfied that it was working properly and wasn't going to go up in smoke, he turned to the Zenith. The first thing he did was to check the set-screw on the tuning knob and he was surprised to find it was tight. With that, he decided to remove the chassis to see what was going on. He first removed the volume control knob and as he started to loosen the set-screw on the tuning knob he pulled on the knob and to his great surprise the knob came out still attached to a short piece of the shaft. "For crying out loud!" he muttered in something just louder than a stage whisper.

Gerry and Clem had heard the "whisper" and kept an eye on his progress. Once the chassis was on his bench they 'moseyed' over to see what had provoked the comment. Art held up the short piece of shaft with the knob still attached. Gerry and Clem took turns peering at the underside of the chassis and the end of the shaft with the knob. It was Clem that offered the first opinion. "Wow, that shaft is cleanly broken, just like it had been sawed in half. The break is right where it passes through the chassis and my guess is that those kids spun the knob so many times that the shaft just wore through. It doesn't help that the shaft has to support the band switch lever as well."

Art shook his head. "I expect you are right but what can I do about it? I suppose we could try to buy a replacement from Zenith, but that could take weeks if they even have one."

Clem held up his hand. "Zenith does have good parts support, but if I were you I would take a short hike across the square to the Hobby shop and buy a length of brass tubing. You can take that broken bit as a sample to check for size and check the display of brass bits that hobbyists use to make model locomotives."

Art was happy to get away from the bench and the 15-minute walk was welcome. To his happy surprise he found a brass tube that was exactly the size that would fit inside his shaft. When he got back to the shop, he removed the remaining half of the shaft and used a drill bit to remove the burrs at the break. He was able to insert a short piece of his new tubing inside the two halves thus making a splice that he could solder with the American Beauty soldering iron. When the repair cooled he used a file to remove the excess solder and smooth the shaft. When re-assembled, the tuning worked "good as new." Art was quite pleased with the result and eager to show off to his shop mates. Clem gave him a knowing grin. "Good job, Mister Miller, good job."

And as "icing on the cake" the set with the new transformer and speaker continued to work well for the rest of the day.

I sat back in the chair and decided it was time to go downstairs to refill my coffee cup. I also decided it was time to see if I could get any more movie industry insights.

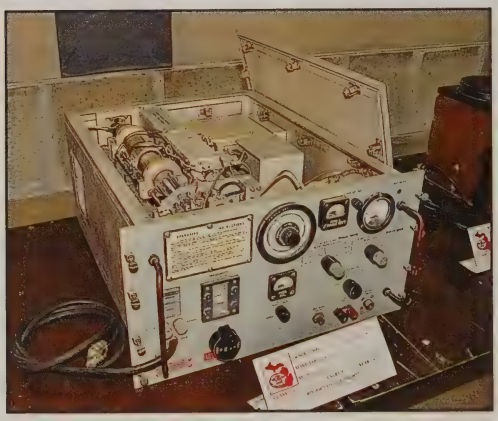
EXTRAVAGANZA'S NEW HOME

Some photos of the Kalamazoo Expo Center, venue for EXTRAVAGANZA '15

One of two large halls that will be available.

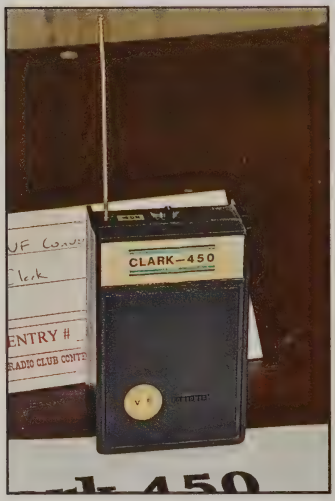
Large loading doors will provide easy access.

Kalamazoo Fall Meet



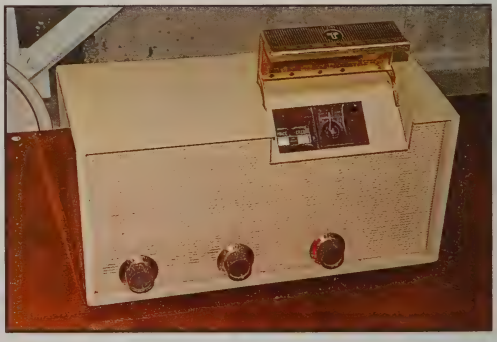
Craig Brown won first place in the Why? category for his 1960s UHF signal generator of unknown origin that weights over 100 pounds.

Second place in the Why? category went to this 1947 Silvertone 101-773 wire recorder owned by Steve Enzer.



John Crawford won third place in the Why? category with his Clark 450, an early device that converted police broadcasts to the AM band.

First place went to John Crawford's display of Plata radios in the Open category.



John DenHartigh won second place in the Open with his International Telemeter model 1001.

Show and Contest Winners

Building a Low-Power AM Transmitter

By Steve Enzer

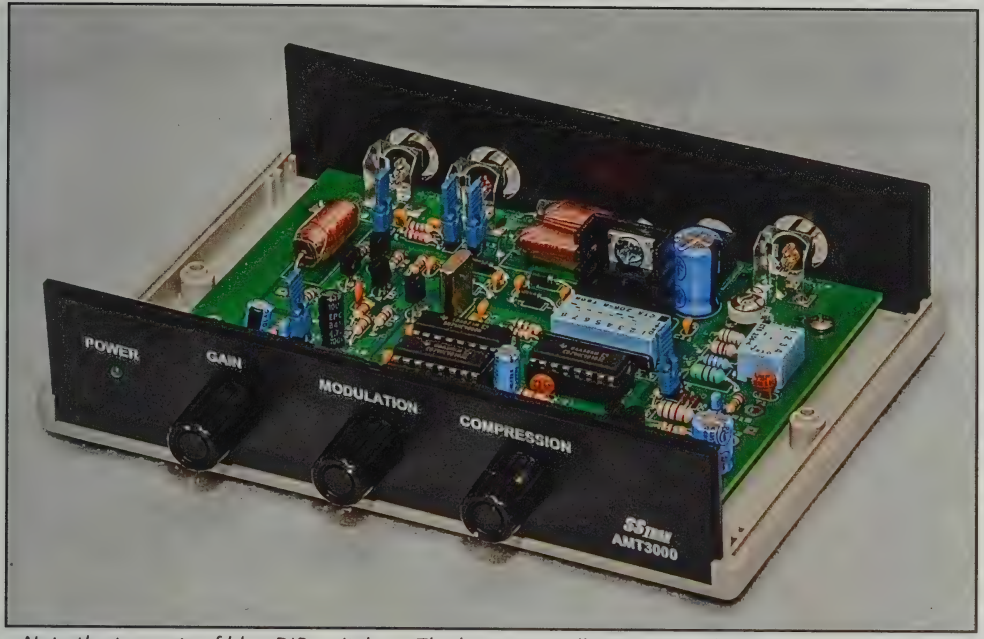
Nearly every room in my house contains at least one vintage radio. Most are in working condition but I seldom turn them on. The reason is that there is practically nothing on the AM band I enjoy listening to. My taste in listening includes public radio, classical, jazz, and some pop music, all of which can be found on the FM band. Unfortunately, none of my older radios receives FM.

For the past few years I've been thinking about building a low-power AM transmitter that I could use to re-broadcast FM stations or create my own "programming" using an MP3 player or other audio source. I finally got serious about it this fall and started looking at my options.

One option would be to look around for schematics and do a home-brew. But I have no experience with transmitters and decided what I was really after was a kit. After some Internet searches and talking to some other collectors, I found three suppliers offering AM transmitter kits suitable for in-home use.

Taking a vintage approach, Antique Electronic Supply offers a one-tube transmitter they say is based on the design of the 1939 Zenith S-7000 Wireless Record Player. It's a true "bread board" design as it is built on a piece of wood. It sells for $39.95 and can be found at www.tubesandmore.com/products/K-488.

Another supplier is Ramsey Electronics (www.ramseyelectronics.com). Ramsey offers two kits: the model AM1C "entry level" kit for $34.95 (power supply an additional $9.95) and a more sophisticated design, model AM25 for $99.95 plus $17.95 for the power adapter. Both kits are solid state. The model AM1C is a simple analog design, tuned via a variable inductance coil. The model AM25 uses a digital synthesizer for frequency control. Output frequency is set via a DIP switch.

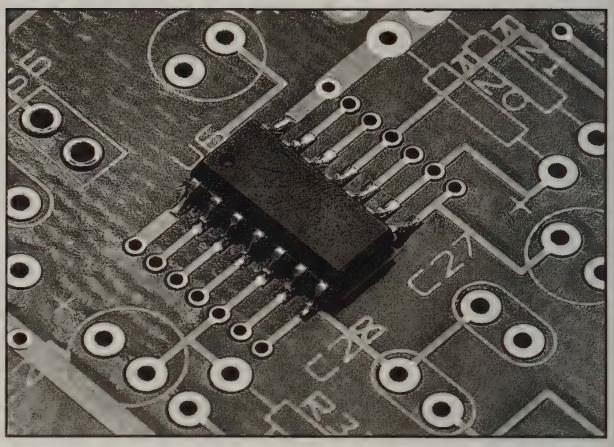


Note the two sets of blue DIP switches. The larger one allows setting the precise broadcast frequency with 10 KHz channel separation. The other sets the inductance of the antenna matching circuit.

The third company selling these transmitters is SSTRAN (www.sstran.com). SSTRAN makes several models, the AMT3000 for $92.95 and the AMT5000 for $224.95, both including an AC power adapter. Both models use digital tuning and are available with 10 kHz channel spacing for North and South America and 9 kHz spacing for the rest of the world. Both units have front-panel controls for audio level, modulation level, and audio compression. Left and right

RCA jacks mix the stereo output of most modern audio sources to mono for AM use. The higher priced AMT5000 advertises "pro" quality and includes balanced audio inputs as well as the standard RCA jacks.

Now comes the decision of which transmitter to build. If you are totally into vintage circuitry, your single option is the AES unit. The low-cost options include both the AES tube transmitter and the Ramsey AM1C. Here, the Ramsey unit has the advantage of coming with an enclosure, plus it no doubt consumes significantly less energy, a consideration if you want to leave it on all the time.



The audio signal processor is a pre-installed surface-mounted chip.

My personal decision was based on the objective of enjoying the maximum performance from my antique radios. That means going for a unit with digital frequency control, as I want a highly stable signal source, as well as good audio quality. I dismissed the SSTRAN AMT5000 because the cost was over my budget. Both the Ramsey AM25 and SSTRAN AMT3000 offer digital tuning, but the SSTRAN unit has the advantage of multiple controls for maximizing audio quality, as well as accepting two-channel audio, while the Ramsey appears to only have a power switch. Since the SSTRAN seemed to offer more design features for the same price, that was my choice. I do have to make the disclaimer that my knowledge of the Ramsey product is based on what I found on their web site, as I have never seen the full specs.

Needless to say, I was very excited when the kit arrived in the mail. I used to build a lot of kits, mostly Heathkit products. But the last Heathkit I assembled was a scope, and that was probably 30 years ago, though I have assembled numerous home-brew projects since then. So when I opened the box I was pleased to find the components separated by type into clear plastic bags, as shown in the first figure. I recall Heathkits where all the small parts were dumped into a brown paper sack. Browsing the instruction manual, I was also pleased to find the level of detail typically found in Heathkit's manuals, including soldering instructions for newbie kit builders. As I got deeper into the manual and looked at the circuit, I found this transmitter has been designed with a lot of extra details to ensure good performance.

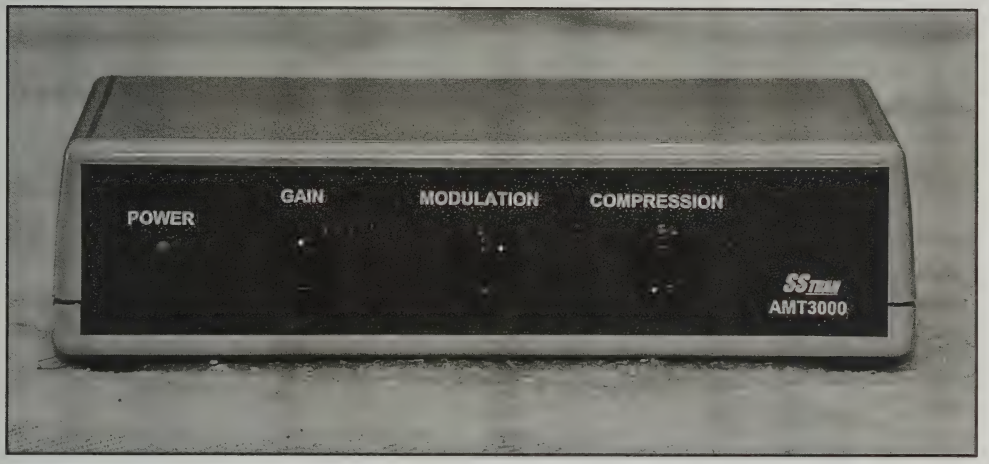
The first thing to be aware of when assembling this kit is that you will be working with a lot of very small, closely-spaced components. There is one integrated circuit in a surface-mount package; fortunately it is already soldered to the PC board. The other ICs are socket mounted. The designer recommends using a 15 Watt soldering iron. Mine is a dual 25/40 Watt unit and it worked fine on the low-power setting. I wouldn't recommend any more power than that to avoid cooking components, and a very fine tip is essential. If you are used to attacking old radios with a soldering gun, it won't work here! Also, unless you

have very young eyes with the visual acuity of Superman, you will need a strong magnifying glass and maybe magnifying googles

Assembly is straight forward. Just inspect your solder connections very closely to check for cold joints and solder bridges, as well as the occasional lead your missed soldering. One of the biggest hassles was identifying the values of the five chokes. These are definitely not the chokes you are used to seeing in old radios. Rather, they are the size and shape of a half-Watt resistor, identified with colored stripes. Unfortunately, the people who put the stripes on these components never learned how to do it like the resistor manufacturers. In the case of these chokes, the bands are very faint and only match the expected colors if you use a lot of imagination. The only way I identified them was by a process of elimination, working from the more clearly marked to the barely marked.

Another issue involved the jumper headers. Each header has two pins embedded in plastic. These are soldered to the circuit board so that you can slip a jumper plug over the pins to select various circuit options. Unfortunately these headers come in a strip of plastic that has to be cut with a knife in order to separate into two-pin units. The instructions warn that they are difficult to cut and the strip includes an extra pair of pins in case one set is damaged. Good thing, as one set disintegrated under the knife, sending a pin to places unknown. So be careful with this step!

After the circuit board is fully assembled and subjected to a very careful inspection of each solder joint with the magnifying glass, we get to the moment of excitement and dread that every kit builder faces: the first power-on test. Following the directions, I set the DIP switches for a frequency that didn't seem to have much interference from commercial broadcasters and connected the wire antenna. Since I was in my shop with some test equipment, I decided to hook my scope to the output to see what the waveform looked like.



Plugging in the power for the first time, I was pleased to see the green power LED light up. After adjusting the scope, I was also happy to see what visually appeared to be a very clean sine wave. The next step was to see what the modulated waveform looked like. I connected the 400 Hz audio signal from my signal generator to one of the transmitter inputs. Turning up the audio gain, I saw no evidence of modulation. So I connect-

ed the scope to the audio input. Flat line. In my excitement, I'd forgotten to power up the signal generator!

After my blood pressure returned to normal after that dumb error, I turned on a nearby AM receiver to pick up the modulated signal. The signal came thru loud and clear. Unfortunately, it wasn't at the frequency I had programmed into the transmitter. A check of the manual revealed that there are two charts for setting the DIP switch frequency settings. One is for the 10 kHz frequency spacing, the other for 9 kHz. I'd picked the wrong chart.

Next came final tuning of the antenna impedance-matching network. Very conveniently, the circuit board has two test point holes the proper size for insertion of most multimeter probes, so you don't have to hold the probes in place. Tuning consisted of peaking the voltage between these test points. The network consists of a fixed capacitor, a variable trimmer-style capacitor, and four chokes that can provide 15 different values of inductance via DIP switch settings. The proper tuning is sensitive to the positioning of the three-meter antenna as well as transmitter frequency, so for optimum setup, it is recommended you redo this tuning when the antenna is in its final position.

At this point, the big test was to see what happened when broadcasting some real music. Thinking for a second about a source, I realized it was in my pocket in the form of my iPhone. It only took a few seconds to grab a cable and hook it up. Suddenly music originating from my iPhone was coming from the little radio on my bench. I then followed the directions for setting the modulation and audio level controls. The audio compression was left at zero. Most commercial radio stations seem to use a high level of audio compression to keep the audio level as high as possible. The exceptions are stations playing mostly classical music. This feature is a nice addition to the transmitter, but probably not needed in most situations unless you are broadcasting music with a wide dynamic range in a noisy environment.

All this time, the transmitter with its antenna has been lying on my workbench in the basement. I had no idea about the range. So I went upstairs and turned on my big Zenith console, which hadn't been used for a long time. After some fiddling with the band switch (which apparently needs cleaning) and adjusting the tuning, the music from my iPhone came blasting out with better fidelity than I had ever heard from the old Zenith. I was thrilled! Next I went to the second floor and turned on several other radios. All received a strong signal from my little transmitter with excellent sound quality.

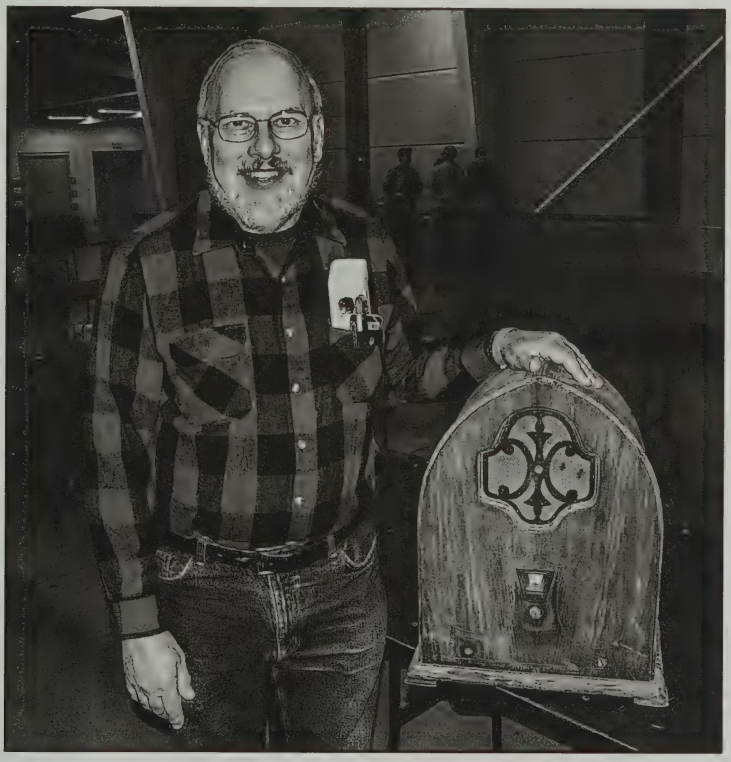
One of the many small details in the design of this transmitter is a jumper you can set to add a treble boost of about 8 dB. This adds a significant improvement to the audio quality since many older AM receivers do not have good high frequency response. Also, I should mention that the unit has filters in the power supply and audio input section that can be switched in or out to reduce AC hum. So far I haven't experienced any problems in this area and the filters are all disabled.

As mentioned earlier, the kit comes with a 3 meter wire for the antenna. This seems completely adequate for use within a house. If there is a need to improve performance and still stay within the FCC rules governing low-power transmitters, SSTRAN offers plans on its web site for a base-loaded vertical antenna. Using this antenna requires several circuit modifications in the transmitter, which are also described. Though the plans are mentioned in the manual, I couldn't find a link to them on SSTRAN's web site, so the

easiest way to get to them is to do a Google search for "sstran amt3000 antenna". One word of warning: don't be tempted to increase range by increasing antenna length. If caught, the FCC can impose harsh penalties for such infractions.

The manual includes a schematic and a good chapter on the circuit design. There is too much information to detail here, but I will mention a couple of interesting design points. The audio processing, which includes compression and control of the modulation level, is handled by a specialized chip made by Analog Devices. The precision frequency control starts with a 4 MHz crystal oscillator. This signal is fed into a frequency divider and converted to 10 KHz, the separation frequency between AM channels. This 10 KHz signal is fed into a phase-locked loop and frequency multiplier (set by a gang of eight switches), which produces the final broadcast frequency. This is fascinating technology, used in many radio applications today. Check the Internet for more information on how these circuits work.

After completing this project, I am very pleased with the outcome and the selection of the SSTRAN AMT3000 transmitter. The ability to re-broadcast a favorite FM station or create your own programming can significantly enhance the enjoyment of your classic AM radios.



Ed Dupart

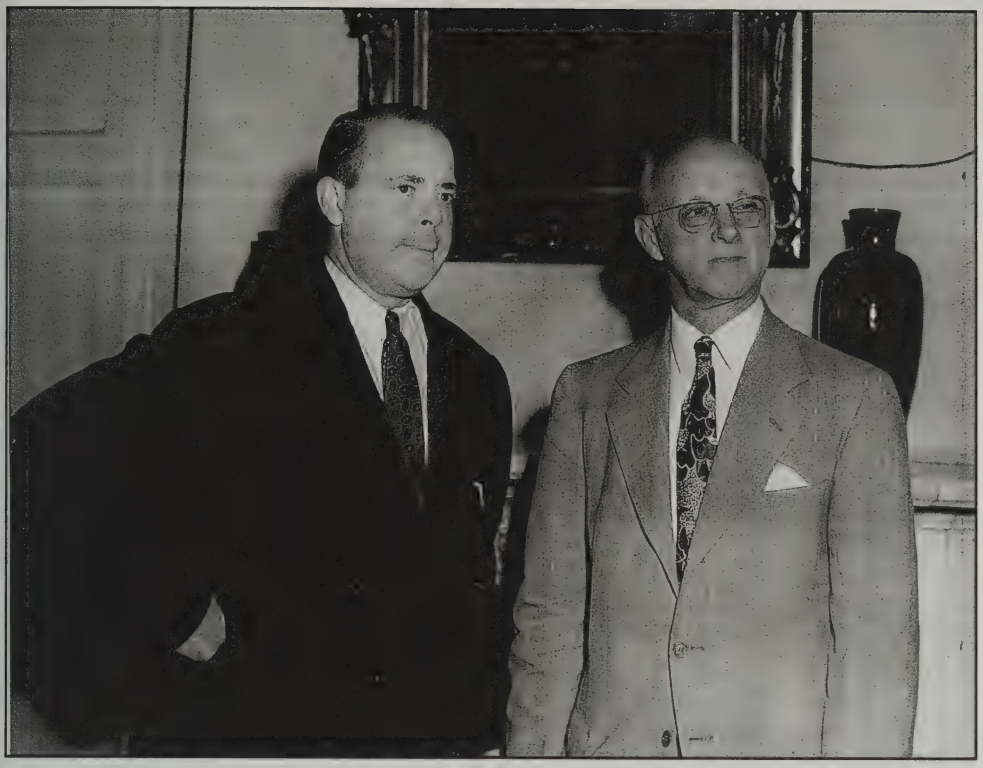
The Time Machine and Robert Alter

Adventures in Collecting **By John Reinicke**

One of the great things about collecting vintage radios is that by researching encountered items, one finds oneself in a virtual time machine. It only takes a little bit of imagination to transport yourself to an earlier time. And the real fun can be the research, which allows you to peel back the layers and further immerse yourself in the past.

For this trip in the "way back machine" you need to visit the "Gray History of Wireless Museum" which is housed at "The National Voice of America Museum of Broadcasting" in West Chester, Ohio. As you may also remember, the museum shared a display from the museum at EXTRAVAGANZA '13. This display is memorable because it was outstanding and took "Best of Show" and "Peoples Choice" Awards. The display featured a radio from the estate of Robert S. Alter. This radio was featured in the display because it was clearly outstanding. The radio could best be described as a laboratory prototype rather than a "homebrew" set and this set was clearly the product of someone who understood radio and wanted a set that offered features and performance well in excess of what was available early in 1927. The set featured precision construction and was housed in a portable case. (Portable in the sense it had a handle, at any rate.)

In fact, this set was so well made that for a time it was simply in storage at



the museum because the first impression was that it was some sort of precision test instrument.

One day at the museum, someone dropped off an envelope that was addressed to Robert Alter with a crossed out return address of the Virginia Theological Seminary. On the envelope was a handwritten address for Mrs, Robert Alter and Jack Gray, a close friend. In bolder ink was W L W museum Mason Ohio. The museum was busy at the time, and the name of the person who dropped off the envelope was not recorded.

The envelope contained a number of photos and newspaper clippings, all related to the life and career of Robert Alter. From the clippings, we learned that Robert had quite a life. He was born in 1880 and was married to Margret in 1910. He was a lifetime Cincinnatian and started his career as an office boy at American Tool Works Company of Cincinnati. In 1965 he retired as the Chairman of the Board. He also served as executive vice president and foreign manager.

Robert was elected three times as president of the Cincinnati Chamber of Commerce's foreign trade club and was the recipient of a medal from the French government for his efforts in trade development.

As if this wouldn't be enough, he was also an accomplished organist and composer having studied organ in Boston and becoming a well-traveled professional organist. To this you can add he was a member of numerous business, professional, charitable, and civic organizations. He was a 32nd degreed Mason.

The photos also provided some more insights into this remarkable individual. Given his rich professional and civic life, it is not surprising to find a photo, dated 5-21-47 of Bob standing next to James Schouss of WLW. There was a photo,

dated 6-14-27, of Robert with the radio featured in the display. There were photos of a radio dated 10-14-34. These photos show another iteration of a radio that offered mechanical precision and, presumably, performance far in excess of what would have been available commercially at the time. One might conclude that Robert wanted the best and if he couldn't buy it, he would build it.

The most surprising photo, for me, was one of Robert in his living room seated at his organ, surrounded by saws! This 6-14-27 photo shows him seated on

the organ bench, playing a saw. As it turns out, he was also noted for saw concerts that were frequently heard on WLW. If you haven't heard a saw, the sound is sort of cross between a violin and an organ with a soprano range. The sound is quite pleasant. Playing a saw requires a very good ear and a modicum of physical strength.

The envelope also contained one intriguing item, a bill of material for a radio. This bill of material was written on Hotel St. George stationary. A little research will reveal that the Hotel St. George of Clark Street, Brooklyn NYC (1200 rooms, 800 baths) was THE place to stay for traveling professionals in the 20's thru the 40's. In fact, it was so popular, that it had its own subway stop. Three stops west on this line put you at the Cortland Street station. Cortland Street was, of course, the famous Radio Row and within just a few blocks of that station you could find dozens, if not hundreds, of shops selling radios and radio related items.

It is only a small leap of imagination to see Robert staying in New York on business either for American Tool or an organ concert. In his spare time, he makes up a list of parts that he needed for his remarkable radio and a 15-minute ride put him shopping in Radio Row.

The Hotel St. George is gone now, but the subway station remains in service. As you ride the subway into Manhattan you will go past the abandoned Cortland Street station, a literal flash of memory for radio fans.

If you would like an interesting radio trip, I can recommend finding your way down I 75 to just north of Cincinnati for a visit to the museum.

Shopping at Mark Oppat's table in Kalamazoo

A Note on Audio Quality

By Ralph Townsley

Editor's Note: This article was supplied by member Andy Bouwman. It was written by Ralph Townsley who was the radio station engineer at Purdue University in the 1930s thru 80s.

In order to appreciate this bit of nostalgia it is necessary to consider the status of AM radio fifty years ago. The manufacturers of radios of that day were competing to produce the best possible audio quality. The radios of that period were mostly large console models. They usually left the impression that the program was originating right in the console cabinet. The boom and squawk boxes of today were non-existent then. No manufacturer tried to design a receiver with a doctored or distinctive sound just because it might sell. Naturalness was the main objective. Also in those days a good, outside antenna was usual, not the exception.

At the studio and transmitter real audio quality was a primary objective. Audio processing was almost unheard of and certainly was avoided at the leading stations. Consoles contained no variable equalizers to be set by the whims of some individual. Equalizers were designed specifically for some valid purpose such as the correction of the response of a studio-to-transmitter line. There was little FCC restriction on bandwidth as long as there were no complaints of interference.

Now to begin the story: One evening I heard a cricket chirping in the station shop. Usually crickets stop chirping as soon as they hear another sound nearby. However, this one paid no attention to other sounds and kept on chirping. It appeared to be back of some filing cabinets and was rather inaccessible. There was little it could damage in the room so I made no attempt to find it.

In those days many stations had rather extensive libraries of recorded sound effects. This was an excellent chance to record the sound of a cricket, although *the need* of such a sound effect was somewhat doubtful. Anyway a fifteen-minute tape recording was made of the cricket. The next day I played the tape back thru the station monitor system mixed with the regular off the air program.

Before long one of the announcers came to the control room with this statement: This may be hard to believe but there is a cricket in every one of the monitor speaker cabinets here.

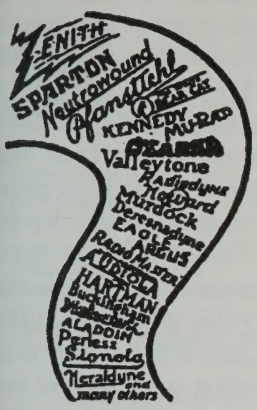
The person who produced the station Homemaker Program hapened to be in the control room at the time. The end result was that the cricket tape was to be played on the air the next day during the Homemaker program. This was a particularly appropriate time since the next day was April First.

Accordingly the tape was played as background to the regular program. No mention was made of the cricket until the end of the program. Then the announcer said "If you wonder what, that cricket in your radio has been saying, it was chirping April Fools in cricket language."

In those days people liked to write or phone radio stations to express their opinions on programs and other matters. The response to the cricket was unusually large. All admitted to being April Fooled by the cricket. Host considered it a good joke on them. A few were somewhat indignant because they had dismantled their radio trying to find the cricket.

The complaint that I remember best was the one in which the caller thought that if we heard the cricket in his radio, we could hear all other sounds as well. He said that he would never turn on his radio again.

I had one other sound effects tape that we had made that I would have liked to play. However, after the results with the cricket tape it did not seem advisable. It was the sound of steam and Diesel locomotives.



The Classified Ads

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Please note that ads for the Spring issue are due by March 1st.

REPAIR SERVICE: I repair old tube type radios. Have stock of old type tubes and parts. Paul Colosimo, 19111 Wood St., Melvindale, MI 48122. 313-928-3780, 313-928-3322 (office).

REPAIR SERVICE: I repair all tube type radios. I have most parts and tubes in stock. Dan Schnaidt, 14160 Hay Rake Hollow, Chelsea, MI 48118-9525, 734-475-1968, 734-417-6995 (cell).

FOR SALE: ARBE-III, Universal Battery Eliminator, $159.95 + $15 S/H. Michigan residents, please add $9.00 sales tax. The ARBE-III is designed to provide the power requirements for most pre 1930's battery operated radios. The custom wound power transformer provides 3 electrically isolated supplies (A, B, C) which are all regulated and short circuit proof. Comes assembled, tested and with a full five year warranty. Please refer to our website at www.arbeiii.com for direct purchase using PayPal. You can contact me at 517-787-2985 for details on money order or personal check payments. We are also offering custom wound audio transformers for early radios. $19 each or $20 each for the center tapped version plus S/H. See our website for other items offered. You can me at arbeiii@yahoo.com.

FOR SALE: PARTS! We have a full stock of radio supplies, including capacitors, tubes, knobs (including our two types of real wood repros!) , bulbs, tube shields, etc. Our two specialties: repro radio dials (we bought the former Clint Blais repro dial business in 2003, and they are still the best!) and we can duplicate or repair most old volume or tone controls. Phono needles, carts and wheels too. Email any wants or see our website at www.oldradioparts.net Over 30 years servicing radios here! Mark Oppat moppat@comcast.net 253 Blanche St, Plymouth, MI 48170 734-455-4169 11am-9pm most days.

FOR SALE: Reproduction radio dial belts and dial cord to fit all radios. Bronze tuner cable for early RADIOLA models. Tuner repair kits for many ATWATER KENT radios. Complete details at www.Adamsradio.com. Adams Manufacturing Company, PO Box 1005, Lincoln Park MI 48146.

FOR SALE: 1% Precision tolerance 500V silver mica capacitors and **1% Precision** 630V tubular axial PSA polystyrene film capacitors. Also for sale are 1000 Volt silver mica capacitors available in many different pF sizes. All capacitors are new production.

For price list and product info, please contact Dave Cantelon, 6 Ferncrest Gate, Scarborough, Ontario, Canada, M1W 1C2 ; phone 416-502-9128; Email: jus-

tradios@yahoo.com or visit WebSite: www.justradios.com

FOR SALE: Reproduction Vintage Radio Dial Covers. $18.00 postpaid for first-class mail shipping in USA. Free mounting in your bezel (add $2.60 for return shipping by Priority Mail). Check my web page at http://jmpalm.home.mindspring.com for inventory list and more details. Send tracing and estimated depth of dial cover if your dial cover is not on the list. Mark Palmquist, Retro Radio Repair, 5033 Arbor Lane, Lilburn, GA 30047. (770) 923-8929. jmpalm@mindspring.com.

FOR SALE: Phono and tape recorder wheels, belts. Phono needles, cartridges, 45 adapters, centerposts for all brands. Our specialty: massive inventory of V-M Factory Service parts, manuals. Also buy same for stock. Visit www.thevoiceofmusic.com or email info@thevoiceofmusic.com with what you have or what you need. Phone (248) 478-0990 anytime before 9pm. Gary Stork, 37530 E. Meadowhill, Northville, MI 48167

FOR SALE: Variety of older ham tube equipment. Quite an assortment of ham magazines, 1970-1990s. Battery radios from 1920s, no horns but complete. Variety of transmitting tubes: 807, 866, 832, 815 etc. Portable Bakelite and wooden TVs early 1950s. **WANTED:** Kennedy console or table model radio. Can be rough needing work or restored if price is right. Phone Gary Clayton, The Olde Tyme Radio Centre, Belgrave, Ontario, Canada NOG 1E0, 519-357-4304, oldetymeradio@tnt21.com, http://www.oldtymeradio.ca/ .

FOR SALE: Radio grommets, washers, and other rubber parts, repro knobs, push buttons, NOS and repro clock radio knobs, Motorola VT71/73 T.V. masks and knobs, and more. See them all at www.renovatedradios.com. Ed Schutz: blacksmith@renovatedradios.com (586) 697-6153.

FOR SALE: Wanted a Tempo-Tone Radio c 1937 as seen on page 159 "Book Tabletop Radios Volume 1" by M.K. Stein. Need just the white plaskon cover for the Remler "Scottie" model 40 or 26 radio. Two decanters and one glass for the Pla-Pal "Penthouse" Poker Radios " ca1935. Also wanted for the Brown Airite Desk set Radio, the Writing set A-10 unit and the Clock A-12 unit. Finally an Employee Badge for Detrola. Contact Joseph DiCaro, 4155 Lastrada Heights, Mississauga, Ontario, Canada, L5C-3V1. E-mail decoradio@primus.ca or phone 905-848-7759.

FOR SALE: Large Philco cathedral – excellent cabinet, missing 2 knobs $65.00; Hallicrafters S-41G $25.00; Victor Console R-15 $40.00; Porto Baradio $125.00; Large Telefunken table model $20.00; 30 to 40 misc radios $5.00 and up; Misc test equipment- cheap; Misc Transistors. Pick up only. Alan Reed 2875 Geneva Hwy, Manitou Beach, MI 49253. 517-547-7570 evenings.

FOR SALE: Zenith 6 volt Wincharger: Unmolested original survivor. Has Zenith/Wincharger logo on tail fin and includes the original 6Ft tower and voltage regulator. $1500. Photos available on request at j303rose@yahoo.com.

WANTED: Jensen made a microscope for checking phonograph needles around 1960. I would to like to buy one. Thanks, William Mittler, wvm42@yahoo.com.

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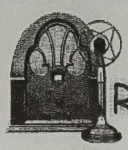

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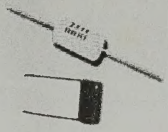

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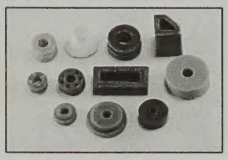

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Call for Articles

Your editor is always looking for new articles. Many of our readers have indicated a preference for articles related to collecting, as opposed to highly technical pieces. Of particular interest are personal accounts of a particular restoration you might have done, or historical accounts related to our hobby. But all subjects related to vintage electronics are welcome.

If you have an idea please feel free to discuss it with me, either by phone or email.

Steve Enzer, MARC Chronicle Editor, enzer@binsys.com. 517-592-2841

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The *Chronicle* accepts paid **business card sized ads**. The ad may be in the form of your business card, or other text/graphics of business-card size. All submissions must be camera-ready. We will not do any typesetting, but simply copy what you send us. Also, your ad can appear on the MARC website at no extra charge.

Rates: $10 per single issue, $35 per year (four issues).

Please send all submissions to:
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Enclose a check for correct amount payable to MARC.

Winter Meet January 18th in Farmington Hills

Vintage Electronics Expo Powered by MARC

Date: Saturday, January 18, 2013.

Location: Costick Activities Center, 28600 Eleven Mile Road, Farmington Hills, Michigan. Entry is at Gate 4, Door A.

Time: Setup starts at 7:30AM for sellers. Also, Early Bird admission for buyers is at 7:30 AM. General admission is from 9 AM to 2 PM.

Admission Fees: $5.00 for general admission, $10 for Early Bird admission.

Activities: Flea Market, Equipment Contest, 50/50 Drawing, Seller's Drawing, Silent Auction, and Donation Auction

Contest Categories:

All collectors have items that are special to them. We encourage you to show them off at our meets, and this the contest is the place.

- **Record Players:** Anything that plays a record is eligible.
- **Advertising and Promotional Materials:** Any items related to vintage electronics are welcome.
- **The Open:** Any vintage electronic item including radios, televisions, test equipment, calculators, games. Feel free to enter items not usually seen at our meets. Surprise us!

Host: Rob Murrell. Please direct all questions and send table registration forms and fees to Rob at 960 Oxford St., Berkley, MI 48072. You will receive a reservation confirmation. For information call Rob at 248-399-2149.